

ABSTRACT

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Title of Diploma Thesis: Western blot analysis of selected inflammatory markers in aorta of apoE/LDLR deficient mice

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Background: This thesis was focused on the detection and subsequent evaluation of the expression of adhesion molecules ICAM-1, VCAM-1 and COX-2 and P-selectin in mouse aortas. Control and monitored group of mice differed in the genetic material, where monitored group of mice had unfunctional genes for apolipoprotein E and LDL receptor (apoE^{-/-}/LDLR^{-/-}).

Methods: For the study, two months old male mice of the C57BL/6J strain were used. Males were divided into two groups - control and monitored with unfunctional receptor for low-density lipoprotein and for apolipoprotein E. Both groups were fed by a standard diet for rodents. For detection and subsequent quantification of the expression of the markers VCAM-1, ICAM-1, COX-2 and P-selectin, Western blot analysis was used. Levels of soluble ICAM-1 and P-selectin in plasma were assessed by Luminex[®].

Results: Western blot analysis showed no significant difference in the expression of VCAM-1, ICAM-1, COX-2 and P-selectin between both groups of mice. Using the method Luminex[®] yielded a significant result (increased levels) of soluble P-selectin molecule in monitored group (apoE^{-/-}/LDLR^{-/-}), but no significant difference in soluble ICAM-1 between both mouse groups.

Conclusions: Relatively surprising results of the study, which revealed practically no differences in the expressions of adhesion molecules and markers of inflammation between control and apoE^{-/-}/LDLR^{-/-} mice groups will be necessary to verify by other methods. Eventually, there can be also considered the role of the relatively early age of mice, which,

combined with the sensitivity of Western blot method, may contribute to non-significant results.

Keywords: endothelium, endothelial dysfunction, inflammatory reactions, atherosclerosis, ICAM-1, P-selectin, VCAM-1, COX-2